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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,434	09/30/2003	Sriram Natarajan	12406-185001 / P2003,0939	7054
26181	7590	07/07/2006	EXAMINER	
FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			LIN, JAMES	
			ART UNIT	PAPER NUMBER

1762

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,434

Applicant(s)

NATARAJAN ET AL.

Examiner

Jimmy Lin

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 12, 13, 17-27, 36, 37 and 40-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-16, 28-35, 38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/25/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-16 and 28-39 in the reply filed on 5/12/06 is acknowledged.
2. Claims 12-13 and 36-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/12/06.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2 and 29 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims 2 and 29 recite the limitation "said plurality of organic polymers" in lines 2-5. There is insufficient antecedent basis for this limitation in the claim. There is antecedent basis for "at least one organic polymer" which is inclusive of only one polymer. However, a "plurality of organic polymers" does not encompass having only one polymer. For the purpose of this examination, it will be interpreted to be inclusive of one organic polymer.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 8-9, 15-16, 28-33, 35 and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Lyon et al. (WO 02/069119 A1).

Lyon discloses a method of fabricating an organic EL device, comprising:
depositing a first electrode on a substrate;

depositing an organic polymer solution on said first electrode (pg. 1, 2nd paragraph);

wherein said solution includes at least one organic polymer (pg. 5, 2nd full paragraph), a first solvent and a second solvent;

wherein said first solvent has a high solubility and a faster evaporation rate than the second solvent, and said second solvent has a very low solubility (pg. 2, 3rd full paragraph – pg. 3, line 4);

allowing said solution to dry to form a substantially uniform organic polymer layer (pg. 7, 3rd paragraph).

The second solvent of Lyon is equivalent to the first solvent described in claims 1 and 28, and vice versa.

Claims 2,29: The solubility of the organic polymer in the first solvent is greater than 0.5% weight per volume, preferably greater than 1.5%. The solubility of the organic polymer in the second solvent is up to 0.5% weight per volume, preferably in the range of 0.03 to 0.3% (pg. 3, 4th full paragraph – pg. 4, line 3).

Claims 3-4,30-31: The first solvent has a boiling point in the range of 100 to 200 °C. The second solvent has a boiling point in the range of 130 to 300 °C (pg. 3, 4th full paragraph).

Claims 5,33: The first solvent evaporates leaving behind a saturated solution in the second solvent. A uniform distribution of the polymer is formed (pg. 7, 3rd paragraph).

Claim 8: The second electrode is deposited onto the organic polymer layer (pg. 1, 2nd paragraph).

Claim 9,32: An ink-jet technique may be used for depositing the organic polymer layer solution (Example 1).

Claim 15,39: The thickness variation is less than 15% (pg. 5, lines 1-3).

Claim 16: The organic electronic device is an OLED.

Claim 35: The organic polymer can be polyfluorene (Example 1).

Claim 38: The organic polymer is deposited onto an electrode.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon et al. (WO 02/069119 A1).

Lyon is discussed above, but does not explicitly teach the temperature is raised and a vacuum is to the solution applied in order to increase the rate of evaporation. However, it is well known and inherent that increasing the temperature and decreasing the pressure will increase the rate of evaporation of any liquid. One skilled in the art would have known to adjust these variables to evaporate the solvents at a faster rate with a reasonable expectation of success. Therefore, adjusting the temperature and pressure to achieve a known result would have been an obvious modification.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon et al. (WO 02/069119 A1) in view of the admitted prior art.

Lyon is discussed above, but does not explicitly teach that banks having apertures are formed on the electrode, wherein the organic polymer solution is deposited into the aperture, and the bank holds the deposited organic polymer solution. However, the Applicant recites that it is known in the art to form banks onto the first

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electrode in order to form apertures. The EL materials are then deposited into these apertures (pg. 1, 3rd paragraph). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form banks onto the first electrode and deposit the EL materials into the apertures because the Applicant admits that such is known in the EL art.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon et al. (WO 02/069119 A1) in view of the admitted prior art, with evidence of inherency from www.surface-tension.de.

Lyon teaches that a third solvent, such as isomers xylene, can be used in the solvent blend (pg. 8, 2nd paragraph). The present specification exemplifies a low surface tension as being less than 30 dynes/cm (pg. 5, 2nd full paragraph; Fig. 1). One isomer of xylene has a surface tension of 28.90 mN/m (www.surface-tension.de), which is the same as 28.90 dynes/cm. Therefore, xylene can be considered to have "low surface tension", and the organic polymer in the solvent blend will inherently completely fill said apertures.

13. Claims 10-11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyon et al. (WO 02/069119 A1) in view of Inbasekaran et al. (6,916,902).

Lyon is discussed above, but does not explicitly teach that the first solvent can be mesitylene and that the second solvent can be methylnaphthalene. However, Inbasekaran teaches that mesitylene and methylnaphthalene are suitable solvents to form a solution with a polymer used to make the EL layer (column 9 line 20 – column 10 line 15). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). One skilled in the art would have selected a suitable solvent having a desired boiling point necessary to carry out the method of Lyon. Therefore, it would have been obvious to one of ordinary skill in

the art at the time of invention to have used mesitylene and methylnaphthalene as the first and second solvents with a reasonable expectation of success because Inbasekaran teaches that such solvents are suitable for forming an EL polymer solution.


Claim 11: Lyon uses a polyfluorene as the organic polymer (Example 1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Thursday 8 - 5:30 and Friday 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

6/28/06


FRED J. PARKER
PRIMARY EXAMINER
for TM